

# PATENT COOPERATION TREATY

From the  
INTERNATIONAL SEARCHING AUTHORITY

## PCT

WRITTEN OPINION OF THE  
INTERNATIONAL SEARCHING AUTHORITY  
(PCT Rule 43bis.1)

To:

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Date of mailing  
(day/month/year) see form PCT/ISA/210 (second sheet)

Applicant's or agent's file reference  
see form PCT/ISA/220

**FOR FURTHER ACTION**  
See paragraph 2 below

International application No.  
PCT/GB2004/005287

International filing date (day/month/year)  
17.12.2004

Priority date (day/month/year)  
23.12.2003

International Patent Classification (IPC) or both national classification and IPC  
H04B10/13

Applicant  
CAMBRIDGE UNIVERSITY TECHNICAL SERVICES LIMITED

1. This opinion contains indications relating to the following items:

- ☒ Box No. I Basis of the opinion
- ☐ Box No. II Priority
- ☐ Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- ☐ Box No. IV Lack of unity of invention
- ☒ Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- ☒ Box No. VI Certain documents cited
- ☐ Box No. VII Certain defects in the international application
- ☐ Box No. VIII Certain observations on the international application

2. **FURTHER ACTION**

If a demand for international preliminary examination is made, this opinion will usually be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA"). However, this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1bis(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of three months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

3. For further details, see notes to Form PCT/ISA/220.

Name and mailing address of the ISA:



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10/584392

WRITTEN OPINION OF THE  
INTERNATIONAL SEARCHING AUTHORITYInternational application No.  
PCT/GB2004/005287

AP20 Rec'd PCT/PTO 23 JUN 2006

## Box No. I Basis of the opinion

1. With regard to the **language**, this opinion has been established on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.
  - ☐ This opinion has been established on the basis of a translation from the original language into the following language , which is the language of a translation furnished for the purposes of international search (under Rules 12.3 and 23.1(b)).
2. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application and necessary to the claimed invention, this opinion has been established on the basis of:
  - a. type of material:
    - ☐ a sequence listing
    - ☐ table(s) related to the sequence listing
  - b. format of material:
    - ☐ in written format
    - ☐ in computer readable form
  - c. time of filing/furnishing:
    - ☐ contained in the international application as filed.
    - ☐ filed together with the international application in computer readable form.
    - ☐ furnished subsequently to this Authority for the purposes of search.
3. ☐ In addition, in the case that more than one version or copy of a sequence listing and/or table relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.
4. Additional comments:

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**Re Item V**

The following documents are referred to in this communication:

- D1 : RADDATZ L ET AL: "AN EXPERIMENTAL AND THEORETICAL STUDY OF THE OFFSET LAUNCH TECHNIQUE FOR THE ENHANCEMENT OF THE BANDWIDTH OF MULTIMODE FIBRE LINKS" JOURNAL OF LIGHTWAVE TECHNOLOGY, IEEE. NEW YORK, US, vol. 16, no. 3, March 1998 (1998-03), pages 324-331, XP000751379 ISSN: 0733-8724
- D2 : US 2002/021469 A1 (CUNNINGHAM DAVID GEORGE ET AL) 21 February 2002 (2002-02-21)

**1 INDEPENDENT CLAIM 12**

The present application does not meet the criteria of Article 33(1) PCT, because the subject-matter of claim 12 is not new in the sense of Article 33(2) PCT.

Document D1 discloses an optical communication systems where an alternative launch technique is used to restrict the excited fibre modes to ensure high quality multi-service transmission (page 1, c.1 - c.2).

**2 INDEPENDENT CLAIM 1**

The present application does not meet the criteria of Article 33(1) PCT, because the subject-matter of claims 1,4,8 does not involve an inventive step in the sense of Article 33(3) PCT.

2.1 The document D1 is regarded as being the closest prior art to the subject-matter of claim 1, and discloses (the references in parentheses applying to this document): a method of optical communication using a multimode fibre (page 1, c.1, p.2), the method comprising using one or more optical radiation transmitters (page 2, c.2, p.2), coupling optical radiation into the multimode fibre using a launch which restricts the number of mode excited in the fibre such that background noise is suppressed in the demodulated signals (page 1, c.1, p. 2-3; page 3, c.1, p.1), wherein the, or each, ~~optical radiation transmitter is a single- or multi-transverse~~

~~mode laser transmitter~~ driven by a combination of modulated radio frequency signals and/or baseband signals (page 3, c.1).

2.2 The subject-matter of claim 1 therefore differs from this known method of optical communication using a multimode fibre in that the optical radiation transmitter is a single- or multi- transverse mode laser transmitter.

2.3 However, the use of a single- or multi- transverse mode laser transmitter is merely one of several straightforward possibilities from which the skilled person would select, in accordance with circumstances, instead of the multimode laser source disclosed in document D1.

### **3 INDEPENDENT CLAIMS 4,8**

The same reasoning applies, mutatis mutandis, to the subject-matter of the corresponding independent claims 4 and 8, which therefore are also considered not inventive.

### **4 DEPENDENT CLAIMS 2, 3, 5-7, 9-11, 13, 14**

Dependent claims 2, 3, 5-7, 9-11, 13, 14 do not contain any features which, in combination with the features of any claim to which they refer, meet the requirements of the PCT in respect of novelty and/or inventive step (Article 33(2) and (3) PCT).

### **5. Other remarks regarding clarity**

The application does not meet the requirements of Article 6 PCT, because claims 1-14 are not clear.

5.1 Although claims 4,8,12 have been drafted as separate independent claims, they appear to relate effectively to the same subject-matter and to differ from each other only with regard to the definition of the subject-matter for which protection is sought. The aforementioned claims therefore lack conciseness and as such do not meet the requirements of Article 6 PCT.

**WRITTEN OPINION OF THE  
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AUTHORITY (SEPARATE SHEET)**

International application No.

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5.2 Independent claims 1,4,8,12 are not in the two-part form in accordance with Rule 6.3(b) PCT, which in the present case would be appropriate, with those features known in combination from the prior art (document D1) being placed in the preamble (Rule 6.3(b)(I) PCT) and with the remaining features being included in the characterising part (Rule 6.3(b)(ii) PCT).

5.3 The features of the claims 1-14 are not provided with reference signs placed in parentheses (Rule 6.2(b) PCT).

**WRITTEN OPINION OF THE  
INTERNATIONAL SEARCHING AUTHORITY**

International application No.  
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**Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

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1. Statement

Novelty (N)	Yes: Claims	1-11
	No: Claims	12-14
Inventive step (IS)	Yes: Claims	
	No: Claims	1-14
Industrial applicability (IA)	Yes: Claims	1-14
	No: Claims	

2. Citations and explanations

**see separate sheet**

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**Box No. VI Certain documents cited**

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1. Certain published documents (Rules 43bis.1 and 70.10)

and /or

2. Non-written disclosures (Rules 43bis.1 and 70.9)

**see form 210**

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